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Mobile: 01819557964; PABX: (8802) - 55167100, 55167228-57 Ext. 7226, Info: <http://brc.ce.buet.ac.bd/#/home>, Report verification: <http://verify.ce.buet.ac.bd>

STRENGTH OF MATERIALS LABORATORY

TEST OF DEFORMED M.S. BARS (BDS ISO 6935-2:2016)

Sent by: Engr. Md. Maksudul Karim, General Manager (Plant)

Shahriar Steel Mills Ltd., Konapara, Jatrabari, Dhaka

Project:

BRTC No.: 1102-97526/CE/23-24; Dt. 6/8/2023

Ref.: Letter; Dt. 6/8/2023

Date of Test: 7/8/2023

Contractor/supplier: - - -

Samples were received in UNSEALED condition.

[illegible]

BDS ISO 6935-2:2016 Weight Requirements, Nominal Area etc. (Table 2).

Conversion factor: $1.0 \text{ MPa} = 1.0 \text{ N/mm}^2 = 145 \text{ psi}$. Strengths are based on nominal area.

Nominal bar dia., mm	6	8	0	12	14	16	20	22*	25	28	32	40	50
Nominal cross sectional area, sq. mm	28.3	50.3	78.5	113	154	201	314	380	491	616	804	1257	1964
Nominal mass per unit length	0.222	0.395	0.616	0.887	1.21	1.58	2.46	2.98	3.85	4.84	6.31	9.87	15.42
Permissible deviation, %	±8	±8	±6	±6	±5	±5	±5	±5	±4	±4	±4	±4	±4

*22mm dia. bar is not covered in BIS ISO 6935-2:2016. Its properties are derived following the principle used for other bar sizes.

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Actual diameter of bars are shown for informative purpose only. It is not a requirement of BDS ISO 6935-2:2016. Actual diameter is the diameter of a perfectly round plain bar having same mass per unit length.

BDS ISO 6935-2 Tensile Requirements for Common Steel Grades

Steel Grade	Yield Strength, R_{eH} , MPa		Ductility Properties	
	Min.	Max.	R_m/R_{eH} min.	Elongation, % (min.), Total At R_m
B400C-R	400	--	1.15	14 7
B400CWR	400	--	1.15	14 7
B500C-R	500	--	1.15	14 7
B500CWR	500	--	1.15	14 7
B600C-R	600	--	1.15	10 7
B450CWR	450	1.25 R_{eH} (min.)	1.15	-- 7.5
B400DWR	400	1.3 R_{eH} (min.)	1.25	17 8
B420DWR	420	1.3 R_{eH} (min.)	1.25	16 8
B500DWR	500	1.3 R_{eH} (min.)	1.25	13 8

Countersigned by:

Prof. Dr. Hasib Mohammed Ahsan, Test-in-Charge

Dept. of Civil Engng., BUET, Dhaka-1000, Bangladesh

07 August 2023

Test performed by:

Dr. Md. Shafiu Bari

Professor, Dept. of Civil Engng., BUET

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Conversion factor: $1.0 \text{ MPa} = 1.0 \text{ N/mm}^2 = 145 \text{ psi}$. Strengths are based on nominal area.

BDS ISO 6935-2:2016 Weight Requirements, Nominal Area etc. (Table 2).

Nominal bar dia., mm	Yield strength, MPa	Ultimate strength, MPa	Elongation, %
10	450	550	25
12	450	550	25
16	450	550	25
20	450	550	25
25	450	550	25
32	450	550	25
40	450	550	25
50	450	550	25
63	450	550	25
80	450	550	25
100	450	550	25
125	450	550	25
160	450	550	25
200	450	550	25
250	450	550	25
315	450	550	25
400	450	550	25
500	450	550	25
630	450	550	25
800	450	550	25
1000	450	550	25
1250	450	550	25
1600	450	550	25
2000	450	550	25
2500	450	550	25
3150	450	550	25
4000	450	550	25
5000	450	550	25
6300	450	550	25
8000	450	550	25
10000	450	550	25
12500	450	550	25
16000	450	550	25
20000	450	550	25
25000	450	550	25
31500	450	550	25
40000	450	550	25
50000	450	550	25
63000	450	550	25
80000	450	550	25
100000	450	550	25
125000	450	550	25
160000	450	550	25
200000	450	550	25
250000	450	550	25
315000	450	550	25
400000	450	550	25
500000	450	550	25
630000	450	550	25
800000	450	550	25
1000000	450	550	25
1250000	450	550	25
1600000	450	550	25
2000000	450	550	25
2500000	450	550	25
3150000	450	550	25
4000000	450	550	25
5000000	450	550	25
6300000	450	550	25
8000000	450	550	25
10000000	450	550	25
12500000	450	550	25
16000000	450	550	25
20000000	450	550	25
25000000	450	550	25
31500000	450	550	25
40000000	450	550	25
50000000	450	550	25
63000000	450	550	25
80000000	450	550	25
100000000	450	550	25
125000000	450	550	25
160000000	450	550	25
200000000	450	550	25
250000000	450	550	25
315000000	450	550	25
400000000	450	550	25
500000000	450	550	25
630000000	450	550	25
800000000	450	550	25
1000000000	450	550	25
1250000000	450	550	25
1600000000	450	550	25
2000000000	450	550	25
2500000000	450	550	25
3150000000	450	550	25
4000000000	450	550	25
5000000000	450	550	25
6300000000	450	550	25
8000000000	450		

Nominal bar dia., mm	b	d	U	12	14	16	20	22	24	26	28	32	36	40
Nominal cross sectional area, sq. mm	28.3	50.3	78.5	113	154	201	314	380	491	616	804	1257	1964	2817
Nominal mass per unit length	0.222	0.395	0.516	0.887	1.21	1.58	2.46	2.98	3.85	4.84	6.31	9.87	15.42	21.42
Permissible deviation, %	±8	±8	±5	±5	±5	±5	±5	±5	±4	±4	±4	±4	±4	±4

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Steel Grade	Yield Strength, R_{eH} , MPa	Ductility Properties		
		R_m / R_{eH} min.	Elongation, % (min.)	At R_m
B400C-R	400	--	14	7
B400CWR	400	--	14	7
B500C-R	500	--	14	7
B500CWR	500	--	14	7
B600C-R	600	--	10	7
B450CWR	450	1.25 R_{eH} (min.)	--	7.5
B400DWR	400	1.3 R_{eH} (min.)	17	8
B420DWR	420	1.3 R_{eH} (min.)	16	8
B500DWR	500	1.3 R_{eH} (min.)	13	8

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